Brandon Leung

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Senior ML engineer & researcher, with track record of leading end-to-end deployment of real-world perception systems to 2M+ worldwide. Expertise in computer vision foundation models, generative modeling, & 3D scene understanding.

Professional Experience

Tesla — Palo Alto, California
Senior Machine Learning & Computer Vision Engineer, Autopilot — *Feb 2024 – Present*
Machine Learning & Computer Vision Engineer, Autopilot — *Aug 2022 – Feb 2024*

- **Perception lead, shipped real-time video foundation models to 2 million+ customer cars globally:** 3D reconstruction, semantic segmentation, parking detection, & proximity field
- Used in many safety-critical Tesla features: Autopilot/FSD, Autopark (**10 million+ customer usages**), Hi-Fi Park Assist, Actually Smart Summon, & Emergency Braking
- Continually developed improvements in **model architecture, training procedure, efficiency optimization, ground truth generation, & evaluation metrics**
- **Solved challenging locations, objects, & weather conditions** by leveraging data & compute at scale; improved Autopark success rate from ~30% to 90%
- Drove **cross-functional collaboration** across QA, safety, UI, infra, product, hardware, & labeling teams to launch production models successfully

Statistical Visual Computing Lab @ UC San Diego — La Jolla, California
Computer Vision & Deep Learning Researcher — *Jun 2017 – May 2022*

- Project leader & main developer of a **novel drone flight system**, recruiting 13 to collect a 120,000 image dataset
- **Improved neural network vulnerabilities to pose & camera shake by 32%**
- Developed a novel neural network refinement algorithm to generate 3D meshes from a single image; used self-supervised learning & symmetry regularization, **beating state-of-the-art (up to 47%),** across many datasets

Research Publications

- **Leung**, Ho, & Vasconcelos. *Black-box test-time shape refinement for single view 3d reconstruction*. Published CVPRW 2022.
- **Leung***, Ho*, Sandstrom, Chang, & Vasconcelos. (2019). *Catastrophic child's play: Easy to perform, hard to defend adversarial attacks.* Published CVPR 2019.

Patents

- US Patent US2025/0028326A1 -- "Enhanced User Interface Generation for Parking Based on Occupancy Machine Learning Models". **Brandon Leung**, et al. Tesla, Inc. Published January 2025.

Education

University of California, San Diego (UCSD) — *Sep 2015 – Apr 2022*

- **M.S. in Machine Learning & Data Science**, GPA 3.86/4 (Advisor: Prof. Nuno Vasconcelos)
- **B.S. in Computer Science**, GPA 3.88/4 (Magna Cum Laude, with highest distinction)

Awards and Additional Experience

- **Tesla Exceptional Performance Equity Grant**, awarded to top 20% talent in Tesla Autopilot, Aug 2024
- **NSF Graduate Research Fellowship** (GRFP), awarded to top ~15% of applicants, Mar 2020
- **Sloan Foundation Graduate Fellowship**, Sep 2019
- **Teaching Assistant, UCSD Data Science Theory (DSC 40A/B) and Programming (CSE 8A)**, Jan 2018 – Jan 2019

Technical Skills

- **Languages:** Python, Java, C/C++, HTML/CSS, JavaScript, Matlab, Bash
- **Frameworks:** PyTorch, OpenCV, Numpy, Plotly | **Tools/Platforms:** Git, Slurm, AWS, Amazon Turk